



A ten-years-after impact analysis of a Companion Modelling approach. Final evaluation report

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Experiment of a Monitoring and Evaluation method of social change impacts of Commod approaches

Convention FIDA-CIRAD N°102654

Final evaluation report
A ten-years-after impact analysis of a Companion Modelling approach
The 'Plan d'Occupation et d'Affectation des Sols (POAS)' operation in the rural community of Ross Bethio in Senegal

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October 2012

Executive summary

The approach:

1. Companion Modeling (ComMod) is a participatory approach used over the 15 years all over the world in order to help a diversity of stakeholders progress to reach an agreement about how to collectively deal with a given issue (multiple uses of natural resources, conflict resolution, value chain organization, land uses planning, policy participatory design, participatory monitoring and evaluation...). The approach achieves lasting impacts for empowerment at both local and national levels thanks to a twofold specificity: methodological and strategic.
2. The methodology focuses on a specific capacity building objective: to let the targeted groups learn by doing right from the first step, through an autonomous and collective practice of designing solutions to a common issue, then assessing and improving these solutions. The role of the support team is limited to monitoring only. The aim is to establish a dynamic autonomous learning-by-doing process which will continue after the light external intervention and make incremental empowerment impacts from local to national levels.
3. The approach also strongly focuses on defining an initial institutional strategy to impact the whole institutional context, from local to national levels. The strategy is defined around the identification of *the needed first and smallest* change of the local context for *a first but lasting impact on empowerment*, and, from there, the prior relationships and capacity building that need to be established to set in motion the essential first socio institutional step previously identified.
4. As a result, ComMod approach consists in a light support of (i) the prior design of an empowerment strategy, and (ii) three 2 days participatory workshops (for about 25 people, from the local aimed group) dispatched on 2 years.
5. The empowerment strategy is collectively designed by a local strategic alliance rallied at the beginning of the project. Then participatory workshops used specific role playing games in which participants themselves design the game, and then test their own ideas on how to collectively deal with the issue. These simulation games enable participants to explore future scenarios, by 'playing' their ideas and assessing the consequences in the game/model. As the roles of the different players preserve the diversity of stakeholders, potential impacts are assessed for each stakeholder's group, in peculiar distinguishing disadvantaged groups.
6. Lasting empowerment impacts on local autonomy are expected after the intervention, and both at local and national levels, thanks to the autonomous learning-by-doing process: (i) local autonomous improvement of the initial participatory decisions and (ii) progressive autonomous advocacy to embed local issues into national policies.
7. The approach is mastered by an increasing international community of practice (www.commod.org), which provides reference people, guidelines, training materials and trainings.

Final evaluation report

The evaluation:

8. Between April and July 2012, IFAD has supported the evaluation of the oldest ComMod experiment (“Opération Poas” 1999-2000, Senegal River Valley, Senegal). The objective of this past intervention was to empower rural district councils so that they would be able to autonomously (i) design then manage a local land uses planning, (ii) oppose higher powers (specially centralized State agencies) to defend local interests and points of view; (iii) embed their local needs in national policy frameworks. The chosen site for the experiment was the largest and most complex rural district of Senegal: the Ross Bethio Communauté Rurale, that covers the whole Delta of Senegal River.
9. Evaluation showed sustainable local impacts, whether in the short term (e.g. after three 2-days-workshops, the district council has designed and implemented its own planning to deal with the key issues it has chosen; this also represented a step for the district council to learn about more inclusiveness in its decision-making), or in the medium term (e.g. after the end of the support, the district council found alone the means to develop infrastructure, to organize internally to manage the issue, and even to efficiently defend local needs from top-down programs and behaviors), or in the long term (e.g. 12 years after, some local councils still use their ‘Poas’ plan to oppose to land grabbing).
10. Evaluation also showed national impacts, whether in the short term (e.g. 2 years after the end of the support, a council of ministers council stipulated that the method should taken up in the whole country), or in the medium term (e.g. each regional plan takes into account the local land uses needs identified during the Poas experiment), and in the long term (e.g. 12 years after, the methodology designed by the local council during the ComMod experiment is acknowledged throughout country, but also in some bordering countries, to set district land uses planning).
11. These different impacts have been reached through an autonomous progressive diffusion, from the initial (1998-2000) well-thought capacity- and relationships--building and institutional strategic facilitation.

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ACRONYMS

ARD	Agence Régionale de Développement
CIRAD	Centre de coopération Internationale pour la Recherche Agronomique et le Développement
CL	Collectivité Locale
CR	Communauté Rurale
CV	Chef de Village
Ha	Superficie en hectares
ISRA	Institut Sénégalais de Recherches Agronomiques
OP	Organisation Paysanne
PACR	Projet d'Appui aux Collectivités Locales
PCR	Président du Conseil Rural
PDRG	Plan directeur de Développement intégré de la Rive Gauche du fleuve sénégal
PI	Plan International
PLD	Plan Local de Développement
POAS	Plan d'Occupation et d'Affectation des Sols
PSF	Pôle Systèmes Irrigués
RB	Ross-Béthio
RN	Ressources Naturelles
SAED	Société nationale d'Aménagement et d'Exploitation des terres du Delta du Fleuve Sénégal et des Vallées du Fleuve Sénégal et de la Falémé
UGB	Université Gaston Berger
VFS	Vallée du Fleuve Sénégal
ZAPA	Zone Agro-pastorale à Priorité Agricole
ZAPE	Zone Agro-pastorale à Priorité Elevage
ZP	Zone Pastorale

1 Aims of the study

The ComMod approach is a participative method of natural resources management designed fifteen years ago. By leaning on specific role plays, it organizes participative simulations where participants build themselves and test their own ideas of the way of improving their natural resources management. These simulation games urge participants to focus on the short and medium-term potential effects of their first ideas, and thus to envisage their managing ways in a much more sustainable perspective. Furthermore, by protecting the users diversity (i.e. the various roles in the game) until the end of the simulations, these games allow to distinguish the impacts on the various groups and thus to emphasize better the needs of the most disadvantaged.

Although light (few game sessions scattered over two years), the approach obtains sustainable changes on the target groups' empowerment situation, whether it is for short, mid or long term. It reaches an effective evolution of the institutional context and the power balance, at the local level of the intervention as at the national framework level.

These impacts rely on **a double methodological and strategic basis.**

In terms of methodology, a very specific form of participation is implemented: a natural resources self-running management, by the target groups themselves, takes place from the first stage of the approach, without being guided by the team, so that the project time is already an autonomous phase of learning by doing. It will enable target groups to continue pursuing their independent capacities development after the end of the intervention. The use of a participative simulation tool during the project allows target groups to leverage this collective autonomous learning time, by incorporating the simulation of management options and their impacts rather than by experiencing all the options in real. The low number of workshops (three over two years) is also involved in the strategy of direct self-running management (see process support¹). This particular participatory objective means that the aim is not to obtain a perfect quality final product at the end of the intervention (eg a management plan) but to obtain a totally autonomous product, used and improved by target groups themselves after the project intervention (see mid and long term impacts). The aim objective is the products self-running rather than their initial quality. Indeed, during the project time, the intervention is focusing on the transfer of some sufficient capacities to the target groups in order to allow them continuing on their own their learning and their influences on the local and national institutional context.

In strategic terms, the participative simulation workshops are preceded by the establishment of a very thoughtful **corporate strategy, built in dialogue with resource persons on the local context**. This corporate strategy focuses on the collaborative elaboration and the implementation of operational responses to the following strategic issue²: (i) which actors and institutions must make a change so that the empowerment objectives brought by the intervention can sustainably succeed? (ii) What is the little progress that it is pragmatically realistic to reach in the project time for these different personalized change issues? (iii) Finally, what is the tactic (the most suited to the local context) to follow for each of the actors and institutions identified in order to obtain this first progress?

Conditions created by this light but double methodological and strategic intervention allow an autonomous dynamic at the end of the intervention for (i) a continual improvement by target groups of their local actions management (ii) the growing influence of target groups and other key stakeholders (see initial strategic dimension), on the local and national institutional context.

¹ ComMod : www.commod.org

² A specific strategic analytical framework is used for leading to operational and highly detailed pragmatic solutions: the Rainbow Framework (d'Aquino 2007). This framework starts with the distinction of these changes in their nature (improving knowledge, changing perceptions/behavior, modification of power positions), and lead to methods to obtain theses changes.

For 15 years, the ComMod approach has been tested in different regions of the world, within a growing community of practice gathered in a collective group (www.commod.org) and regularly producing training and diffusion materials. The approach is used in all cases where the issue is to accompany a group of actors with diverse issues into a shared ownership of collective action: multipurpose management of a natural resource, conflict resolution, industry improvement, spatial planning and land management, participative construction of public policy, participative evaluation of a project or a policy...

For IFAD, the local people empowerment (especially the one of vulnerable groups) involves reaching short and long term impacts on *social change*, also by incorporating the national level. According to this, the *Water Division, Rural Infrastructure Operation Policy and Technical Advisory*³ financed an assessment of the oldest ComMod experience (the "POAS Operation", 1999-2000, Senegal River Valley, Senegal) between April and July 2012. The study was conducted through an ex post evaluation, 12 years after the initial project. It built an analytical reflection on the ways of conducting ex-post evaluation of participative approaches.

2 Presentation of the Ross Bethio POAS Pilot Operation (1999-2000)

Between 1999 and 2000, an experimental ComMod approach called "Ross Bethio POAS Pilot Operation" was conducted in the Senegalese side of the Senegal River Valley. This issue of this operation was the empowerment of rural communities' local representatives on the subject of land management. Its aim was to strengthen in two years these local representatives so that they become able (i) to perform independently a first local management plan, (ii) to oppose themselves to the state regional programs that do not meet their needs (iii) to recognize their capabilities and legitimacy within the national public policies.

In order to achieve pragmatic results, the experiment was implemented in the usual conditions of development support: ad hoc support of a three officials (technical services and research) team without specific funds and covering an operating area of 2500 km². Ross Bethio is indeed the largest rural community of Senegal and encounters the highest pressures on space management (high irrigation potential, high environmental value, marginalization of disadvantaged groups).

The intervention design is therefore based (see previous section) on a double methodological and strategic basis.

In strategic terms, the objective was at least (see previous section) to focus on a small but comprehensive and sustainable first stage of target groups' empowerment evolution, focusing on power relations and institutional behaviors. This has led to the following strategy for this operation:

- ✓ Implementing **a learning by doing of the tools for an integrated space management:**
 - mastery of the necessary information (facilitated by the development of mapping materials);
 - self-running animation of a concerted decision making (facilitated by participatory workshops conducted by the rural council and gathering a variety of users);
 - collaborative planning development (facilitated by the implementation of a self-running space management, supported by participative simulation workshops).
- ✓ Taking into account **the need of a disadvantaged group (the breeders) for space access :**
 - First locally, then regionally and nationally recognized the importance of livestock farming and its need for space, particularly in the Senegal River Valley and its irrigated area;
 - Design and diffuse a spatial zoning methodology that recognizes a place to livestock farming;
 - Design and diffuse a spatial management methodology that can manage the livestock needs of mobility.

³ Management Department Program

- ✓ Getting **changes in power games**. Indeed, the learned technical skills (see previous objective) can only be implemented by the local elected representatives if the social and institutional context allow it, even if they have a legal responsibility to do so. The goal was therefore that all local institutions (administration, development support services, population, local officials themselves) recognize the new responsibilities and capacities of rural councils to support the development and management of the local territory.
- ✓ Establishing the conditions for **a gradual but profound evolution of the institutional context, to the central level**. Even if the local institutional context allows the expression of the local politicians' capacities, these impacts may not be sustainable if the national framework does not move in the same direction. In the Senegal case, the POAS Operation goal was therefore to attempt initiating a bottom-up development of the spatial planning issues and tools, from the local scale to the regional and national scales, and to a greater empowerment of local decisions.

In terms of methodology, the approach was to identify and map directly by local actors the different land uses (irrigated agriculture, rainfed agriculture, livestock farming, fishing ...), then to leave them design alone and in a participative way some first management rules that preserve enough and adequate space and resources for the different activities. This autonomous collective reflection and design was accompanied by an innovative combination of participative prospective tools (participatory GIS, role-playing, computer simulations) self-designed by the actors themselves.

3 Evaluation methodology (Papazian 2012a)

The analytical grid for the impact assessment was built according to the objectives of the Companion Modelling approaches. Therefore, the assessment of effects on the social and institutional change is central.

Three types of evaluation indicators can be selected for this type of evaluation: indicators of the process quality, quantitative indicators of impact on the development, and qualitative indicators of impact on social changes.

3.1 Indicators of the process quality

This concerns indicators used to evaluate a participative approach: number of workshops conducted; number, profile and representativeness of participants, nature and relevance of the chosen participative approach⁴, potential of diffusion. These indicators are considered as indirect measures of the effect of participation on reducing poverty, improving the life quality of the beneficiaries, sustainable development of the concerned area...

3.2 Quantitative indicators of impact on the development

Concerted rules of management should lead to a better access to space and resources, and therefore on the one hand to a food security improvement and on the other hand to a decrease in production costs. For improving food security in this type of operation, indicators could be: improvement of "direct"⁵ self-sufficiency food, improvement of land and natural resources access⁶, improvement of water access (for agricultural or

⁴ Focus groups, workshops, roundtables, participatory mapping, individual semi-structured interviews...

⁵ Evolution the lean period length (months); estimate yields (t/ha) and /or estimate annual production (Kg) and its months of consumption equivalent (months); self-sufficiency (%) (proportion of respondents who produce more than 190 kg of cereals / capita / year); increase in the share of forest products (NTFPs) sold...

⁶ Evolution of cultivated areas since the intervention; evolution of the number of producers with a land access of less than X ha, between X and Y ha, greater than or equal to Y ha; evolution of cattle corridors areas since the intervention; evolution of the number of breeders with pasture access of less than X ha, between X and Y ha, greater than or equal to Y ha; evolution of areas accessible to the forest products (NTFPs) collect since the intervention; evolution of the number of local population with a NTFPs access of less than X ha, between X and Y ha, greater than or equal to Y ha; evolution of areas accessible to timber collect since the intervention; evolution of the number of local population with timber access of less than X ha, between X and Y ha, greater than or equal to Y ha.

pastoral use⁷), improvement of crop⁸ and livestock⁹ production. For the reduction of production costs, the indicators could be: the reducing of costs by direct losses (due to crop damage by the passage of the livestock), the stabilization of the financial costs (fines, water rate access, land rate access...), lower costs for the covered distances (to access cultivation and crop areas, to rally a collect point, or a market, to access to water for irrigation or watering livestock...).

However, the lack of accurate data on the local situation before the intervention has limited the implementation of a quantitative evaluation of impacts on the development. However, the study has produced an analysis grid for these indicators. The grid was confronted with ground conditions, in order to lead to a grid proposal which will be operational for this type of operation in this type of information context.

3.3 Qualitative indicators of impact on social changes

In the area of participation, it is essential to evaluate the social and institutional effects caused by the intervention: actions and collective dynamics, collective and individual learning, evolution of institutional and power relations, changes in perceptions and behaviors... In the POAS Operation context, it concerns different areas:

- In the spatial planning:
 - An improvement in the target groups' involvement in the selection and implementation of infrastructure programs (agricultural, pastoral, hydraulic...): changes in the proportions of built infrastructure (schools, health clinics, water sources, canals, cattle tracks, station of livestock vaccination, etc.); evolution of the number of functional infrastructure managed by local groups;
 - Securing the different uses / users of land and natural resources: evolution of the habitat distribution (dispersed, gathered); evolution of the number of households with a land housing right, nature of this (these) conferred right(s) (formal-legal or customary, informal, subsidiary, temporary ...) and quality of their guarantee; evolution of the respondents perception (about themselves but also about others actors) on the notion of secure access to land and natural resources (Note 1-4: insufficient over a long period, insufficient, enough, enough for a long time) and on the improvement (or not) of this access after the process.
- In the effectiveness of decentralization:
 - An evolution of the social and institutional context (users and citizens, local leaders, institutional and technique powers that surrounding them) that recognize to target groups the right and capacities to be involved in decisions that affecting them;
 - The evolution of the individual and collective capacities of the target groups, either to support their sustainable development or to recognize their needs and viewpoints with others actors.

3.4 Evaluation implementation

Three additional sources have been mobilized:

- ✓ field surveys between April and July 2012 in the rural community of the initial project (Ross Bethio) and in a rural community control¹⁰;

⁷ Source of water access: evolution of the number of boreholes, wells, river access ...for agriculture and livestock farming exploitation: evolution of the number of farmers and breeders with a water access right; nature of this right (collective / individual, formal, customary, informal, subsidiary, temporary...); evolution of the water share destined to agriculture or livestock farming.

⁸ Number of farmers reporting an increase in their production/yield; number of farmers reporting a crop diversification (if yes which one) and a practice of the counter-seasonal harvest

⁹ Number of breeders reporting an increase in their milk/bovine production; an increase in their herd (tropical bovine unit (UBT)); evolution of the lactation period length (months).

¹⁰ The Nguer Malal rural community

- ✓ cross-sectional analysis based on a series of interviews with various actors directly or indirectly related to the Ross Bethio POAS Operation;
- ✓ a workshop of collective evaluation by appraisal, bringing together leading experts who participated in the experiment¹¹, for the treatment of specific issues:
 - What were the priority issues of the POAS Operation in 1999?
 - According to these issues and objectives what were the levels of performance and impact achieved in 2000, at the end of the POAS Operation?
 - What remain of these results and impact in 2012 (not at the limited scale of the Ross Bethio rural community but across Senegal¹²)?
 - What would be the (new) priority issues today, in 2012, if an operation like the POAS had to occur again?
 - And therefore how could it be done better?

4 Evaluation results

4.1 POAS Operation products

- A leading self-running space management:

With light support (three 'two-day workshops' over a year + cartographic production), the rural community has independently produced¹³ after two years a local management plan that include a zoning and a regulatory charter (Figure 2). There were two new products in Senegal at this time.

In addition to this Plan, special measures were collectively thought in areas of high environmental value until a stage of consultation and pragmatic precision unprecedented (see Figure 5).

- First changes in power relations between local elected officials and support services:

The corporate strategy built at the beginning of the intervention early produced a first result: an unprecedented formal agreement between the rural council and technical supervision (SAED, ISRA, UGB). This agreement was officially positioning local politicians as pilots, and not anymore as simple targets of the intervention program. The second evolution was to force the local social and institutional context to let local politicians managing not only administratively the POAS Operation but also managing the animation of the consultations for the establishment of local rules, either from supervising services¹⁴ or populations¹⁵.

This kind of position reversal, with the local officials as pilots and the Research as a support service has continued even after the end of the POAS Operation. In 2002, the Ross Bethio Rural Council asked itself the zoo-technicians of the Senegalese Institute of Agricultural Research (ISRA) to take part to a meeting of eighty representatives of the Ross Bethio rural community farmers. The zoo-technicians presented two different technical options of forage intensification, the less intensive and the more intensive with the advantages /

¹¹ Patrick d'Aquino (CIRAD), Babacar Diop (ex vice-president of the Ross Bethio CR), Sidy Mohamed Seck (ex ISRA and UGB), Serigne Modou Fall (UGB) and Seydou Camara (ex SAED)

¹² By taking into account the diffusion effect that the operation may have had.

¹³ This includes (i) the choice of the participation form (number of workshops, participants' profile ...) and its management, (ii) the identification of the information needed to support the consultation, (iii) the collection of this information on the territory of the rural community (iv) the mapping analysis of this information, (v) the establishment of common rules for the use of space and of mechanisms for monitoring and managing these rules (d'Aquino et al XXXX).

¹⁴ The sub-prefect banned the first meeting because he had been called neither by the technical service nor by its territorial administration services. The project team left the local officials learn to manage by themselves this first challenge and convince the sub-prefect to support the process.

¹⁵ The newly elected local officials, had to establish their legitimacy and prove their capacity to their citizens, especially to the chiefs of the villages included in their territory. This was done gradually over the past two years of intervention (see p.8)

disadvantages of each. Then, the meeting organized itself the test and the follow-up of the two possible options, with two volunteers from the rural community.

The POAS Operation has also prompted local officials to build privileged ties with members of the young (1996) local university, the University Gaston Berger of Saint Louis, Senegal (UGB). Firstly, lawyers from the University have volunteered to strengthen the legal value of the rules set by the community (see Figure 3). Then, geographers have mentored students work in order to answer to the applied research questions raised by the community after its first plan¹⁶. These first collaborations have eventually led to the development of a deep collaboration between UGB and local authorities (see below).

- The recognition of the needs of a disadvantaged group (the breeders) in the senegal valley:

The evolution has also concerned the second disadvantaged target group (after local elected officials regarding the central government): the breeders. Their needs for access to space and water have been recognized as one of the major issues of the local space management, including in the irrigated area which was a real innovation in the context.

For its POAS zoning (see Figure 2) the Ross Bethio Rural Council has built a typology of areas including in an unprecedented way pastoral priority areas, even in the area usually reserved to agricultural irrigation. The Rural Council also acknowledged in the POAS the critical needs of water access in agricultural areas and it specified the constructions that were necessary: water points, bridges for livestock crossing canals ... (see p.8). For its regulatory charter, new collective rules were decided to overall set conflict between agriculture and livestock farming: formalization of the corridors and the pastoral water sources (prohibited from cultivating), elaboration of opening and closing dates of the agricultural areas for the breeding in order to prevent the agricultural calendar to spread over the year, implementation of rules for the exchange of crop residues (farmers) against a contribution of animal fertility (livestock breeders), etc...: see Figure 3.

- The initiation of an autonomous impact dynamic:

As seen in section 1, the intervention strategic issue regarding "participation" is to create the initial conditions allowing a self-running dynamic at the end of the intervention, for either (i) a continuous improvement by the target groups of their local management actions, (ii) but also for the growing influence of target groups and other key stakeholders (see initial strategic dimension) on the local and national institutional context. In other words, these are impacts to achieve not directly by the intervention, which has little time and means in comparison with the ambition of obtaining sustainable changes across the institutional context and the power relations. It has to be achieved by the target groups, thanks to the few key capabilities set in motion during the intervention.

The POAS established by the rural community has been defined from the beginning as provisional, the first version requiring two years of testing by the rural community in order to be improved. The community council then decides itself to create a new body of volunteers to lead the implementation of local rules and diffuse it. He also decided itself, after the end of the intervention, to establish a regulatory charter (Figure 3) and made it approved by a special resolution of the rural council.

Finally, the community has still independently built a structure for consultation and decentralized internal management, with zone commissions bringing together elected representatives of the zone, village chiefs and representatives of different users. Not only managing the implementation of POAS, these zone commissions have gradually taken over conciliations that were not directly related to POAS¹⁷.

¹⁶ What sustainable management for the wetlands that could allow its use by disadvantaged groups?

¹⁷ For example, the members of the former Ross Bethio sector committee still gather before each crop year to discuss and provide guidance for agriculture and livestock.

This self-running dynamic at the end of the intervention could have produced sustainable impacts still observable twelve years later.

4.2 Qualitative indicators of impact on development

▪ Impact of POAS rules :

The field assessment conducted between April and June 2012 (Papazian 2012b) shows that the concerted and formalized establishment of the cattle tracks at the time of POAS Operation still limits today the number of farmers who grow on these tracks. Opening and closing dates of the agricultural areas for the breeding are still discussed each year in Ross Bethio. Thanks to the POAS organizational plan, supported by a precise cartographic support, a defined group can take more practical decisions. Of the 14 sector commissions, at least 6 worked properly (Papazian 2012b). 57% of citizens surveyed consider that access to the tracks and grazing for the livestock is secure. Regarding conflict management, although conflicts between farmers and herders regarding the ramblings of livestock (which is predominant in the POAS conflict zone) are still numerous and recurring, 60% of respondents consider that these conflicts have generally declined since the end of the operation (Papazian 2012b).

▪ New infrastructures:

Some measures of the autonomous POAS establishment have included the identification of infrastructures that would be useful to a sustainable and socially acceptable resources management (see disadvantaged groups). This was the case in the Gnith village area, where at the end of the participative simulation workshop of two days, held in April 2000, first potential options were identified (see first illustration in Figure 4): pastoral water sources, irrigation canals, and fodder reserves. Some years later, the community implemented alone these options (see second illustration in Figure 4).

Regarding the Djoudj birds National Park periphery, included in the rural community, the development proposals built upon participative simulation workshop in May 1999 (see Figure 5) were then independently implemented (including financially).

The POAS has also been used by the rural council to bring NGOs (involved so far on their territory in an uncoordinated manner) establishing an installation plan of consistent and fair social infrastructures (schools, wells, boreholes, pharmacy, health huts ...).

▪ Bottom-up evolution of spatial planning issues and tools:

In 1998 all development actors felt that local rural officials were not having requirements to support the management of their territory. The success of the POAS Operation convinced them. In 1999, a Council of Ministers has decided to include in the sixth letter of the SAED mission the generalization of POAS to all rural communities in the Senegal River valley. Moreover, in all the versions of the Agro-Silvo-Pastoral Orientation Law (LOASP) that may have been officially published since 2002, an article states that all rural communities in Senegal must complete and integrate a POAS into their functioning. The President himself gave the first finalized POAS to the Ross Bethio Rural Council during a visit in the Dagana department. The national enthusiasm for this toll has been very quick at the time, and the State greatly contributed to the POAS large diffusion. The major initial issue remained in this diffusion: today all Senegal actors have integrated that (i) the POAS is a space management tool that is lead by the rural elected representatives; (ii) this tool and so its local managing is essential for the development policies in Senegal. However, much remains to be done for a real ownership of the process at the national scale, in particular regarding the information at the national level on the specific objectives and the actual content of the approach in terms of empowerment.

The second POAS diffusion path at the national scale is its integration into already existing spatial planning tools: Local Development Plan (PLD), Regional Planning Scheme. PLD in Senegal is the most local element of the fitted top-down approach, so the POAS articulation with it is important to increase rural politicians' bottom-up

empowerment in spatial planning policies. The Ross Bethio representatives actually implemented themselves, independently, the relationship between POAS and PLD, by mobilizing the same local animators and methodology for the implementation of both the POAS and the PLD. They also integrated the POAS conclusions regarding the necessary investment (see water sources, canals, etc...) in the establishment of their PLD.

4.3 Qualitative indicators of impact on social changes

- Changing in the power relations between rural communities and government services:

Relations between Rural Council – SAED

The evaluation study in the field between April and June 2012 helped to identify sustainable changes in the relationship between rural elected officials and SAED. The first significant impact underlined was on the state project "Emissaire Delta" (2001-2002). It was the construction of a fifty kilometers canal across the delta of Senegal (for the evacuation of the drainage waters in the large irrigated perimeters). Thanks to its mapping expertise and its POAS implementation, the Rural Council realized that the outline of the future canal was cutting the cattle corridors (officially recognized through the POAS). The first project proposals (1995), prior to the POAS operation, had not encountered remarks from rural councils at the time, because they had not acquired enough capacities to play their role yet. Following the completion of its POAS, the rural council organized a large mobilization (through a petition gathering all the village chiefs and members of the rural council) and then challenged the SAED. The Rural Council has even forced the SAED to submit the emissary delta scheme that she had not wanted to communicate so far, in order to compare it with the POAS maps as a further proof of his argument. This ability to mobilize and argue led to a temporary blocking of work and to a renegotiation (compensation, construction of crossing bridges).

More broadly, when SAED officially took over the mission of POAS diffusion in other Senegal Valley rural communities (1999), the rural council of Ross Bethio forced SAED to conserve the original methodology, although she wanted simplify it for a faster achievement.

At last, the final impact to note is the current SAED Partnership Program Promotion rice in the Senegal River Delta (3PRD). It has been the subject of intense discussions between the Ross Bethio rural council and the SAED because some intended private agricultural infrastructures were considered on POAS priority breeding areas.

Overall, thirteen years after the operation, a different relationship has been sustainably established between local collectivities and SAED. Rural councils and even some people consider POAS "as a tool to help them negotiate and oppose to other." Thus, during violent protests in 2012 against land grabbing, one of the arguments brought by the people mobilized was that lands affectations had not complied with the POAS zoning¹⁸. As another example of the value that people bring to POAS, new mandated (during a renewal of rural council Ronkh) have urge the SAED to update the POAS, because they did not trust the previous team, and they succeeded: the SAED agreed to (re) finance a POAS elaboration. This shows that the rural politicians are aware of the importance of the POAS tool, but also that today SAED takes better into account the demands of the rural elected officials.

Relations between Rural Council - other technical services

Before the POAS Operation, local officials were agreeing to all the offers of the technical services. The study shows that in 2012 these behaviors have evolved following the POAS. The first example concerns the relationship between the rural community and the Djoudj birds National Park team. In 2001, state agents who were in charge on the Djoudj Park management hold a collective meeting of validation of their zoning maps describing uses in the Park and its periphery. The Park team was considering this meeting as a simple restitution of decisions that they had already taken, but in fact the meeting turned into a protest, argued by the rural council with the support of its POAS maps. The zoning outline established by the park team had to be

¹⁸ See the Fanaye conflit in october 2011 (www.rfi.fr/afrique/20111027-accaparement-terres-projet-biocarburant-fait-deux-morts-vallee-fleuve-senegal).

reconsidered, and the buffer zone became an area of shared management between the park and the rural community. Local elected officials are therefore better equipped to make their own territorial diagnosis and challenge potential inconsistencies.

Relations between Rural Council - research institutes

At the beginning of the POAS operation, the Senegalese Institute of Agricultural Research (ISRA) has agreed to a POAS memorandum of understanding where the Ross Bethio rural community was recognized as the pilot of the operation. Agreeing to work in this kind of researchers – technical services partnership, and moreover under the rural officials managing, was very innovative at the time.

The Ross Bethio rural council has formed a new posture and new capabilities for itself, which it has repeatedly mobilized after the POAS Operation. He expressed several times his interest with partners so that researches can be done in the field of sustainable land management, including the wetlands rehabilitation.

However for ISRA, the changing of posture initiated by the POAS memorandum of understanding has not continued in the executives' renewal. In 2001 ISRA has presented to the population its new regional research program (the PACEPA: Support Program for the Dialogue between the State and Agricultural Professionals), built without involving local communities. The Ross Bethio community went against this program that did not take into account its own search requests, built from POAS diagnosis. The community managed at the end to constrain ISRA to integrate its concerns in the ISRA "participative" program validation.

The partnership dynamic was much more constructive with the young (1996) University Gaston Berger of Saint Louis, Senegal (UGB). Following the first links forged during the operation (see above), teachers and researchers of the University have supported the first national recognition of local rules, by strengthening its legal legitimacy (see Figure 3). Then a specific scientific group was created in 2001 at UGB (GIRARDEL: Interdisciplinary Research Group in Regional Support to Local Development) in order to conduct applied research in response to local demand. This group has established the «GIRARDEL Wednesdays "as an innovative space for exchanges between academics, students and farmers representatives. The fact that a University could serve local collectivities was highly unusual at the time, and has gradually influenced the whole University, which has developed since the mid-2000s a sub-regional legitimacy in its applied research specialty (the development support).

- Changing in relationships between rural communities and other local stakeholders

From projects and NGOs

Since 2000, NGOs working in the area in order to install new infrastructures (education, health, etc.) has been constrained to comply with the comprehensive and geographically equitable infrastructure development plan that has been anticipated in the POAS. Consequently the International Plan (IP) NGO has even created an instance of joint dialogue with the Ross Bethio rural council, so that it would be included in infrastructure planning for its territory. The impact has also concerned the private businesses. The CotonSen company (cotton crop) was forced in 2004 by the Rural Council to move its installation in order to be in compliance with the POAS.

From traditional village chiefs

The territory of each rural community gathered a large group of villages (fifty for Ross Bethio). With decentralization and the election of representatives at the community level, the traditional leaders of the village, who have been dispossessed of their legitimacy as local space management responsables, did not recognize the responsibilities and usefulness of local officials. As for them, before the POAS Operation, the local politicians were considering village chiefs as an obsolete organization. But the consultation and the self-running structuring of the POAS approach have gradually made realize to both parties the interest to work together, in order to strengthen their respective legitimacy and their effectiveness to bring their viewpoints to the highest level (see above large mobilization against the initial draft of the emissary delta project). Village leaders have

been included in the land use commission of the rural community (this action was already stated in the text but not applied by rural councils). This made the land use commission more effective. The rural council has even convinced in 2008 a project of rural council's capacities reinforcement (PACR Project / AFD) to add the capacities of village chiefs, who were not initially planned. This local coordination between local officials and village leaders (still operational in 2012) is not observed in rural communities that were not affected by the POAS operation (Papazian 2012b). It is however an essential local agreement, either for sustainable conflict resolution that for the implementation of sustainable land management.

4.4 Limitations in 2012 on the achieved impacts

- On the animation and the development planning

Sustainable diffusion of the approach within the rural community is based firstly on the level of population information and secondly on their involvement within consultations, which must be regularly renewed. This involves the establishment of an important internal animation into the rural community. However, until now this animation is voluntary. The Ross Bethio Rural Council has created a specific business function for animation in 2002, following the POAS Operation, the "POAS animator." But the Rural Council does not have the means to operate effectively and sustainably this new staff of local voluntary animators. And the results of the 2012 field evaluation point a lack of local animators training (90% of the local officials surveyed in the initial project area recognize never have done animator training), while the Ross Bethio rural council has repeatedly urged the authorities to implement this type of training support.

Organizational problems and means therefore exist for the diffusion and awareness of the rules, and too few people are aware besides the initial workshop participants (on the initial project area, it means 300 people for a total population estimated at 46,816 inhabitants (RGPH¹⁹ 2002, SAED 2010)). Consequently some rules are not or little respected, like the rules of exchange of crop residues (farmers) against a contribution of animal fertility (cattle herders), or the tightening of the agricultural calendar which required extensive coordination between producers and local officials of the Rural Council.

- On the learning of local officials

The field evaluation conducted in 2012 shows that the new generation of rural representatives does not receive a support effective enough for integrating POAS empowerment issues, to the point that some politicians who have benefited from the "POAS new generation "do not always understand its issues. However examples like Fanaye in 2011 (see above) show that this finding is not general. The 2012 study has even found that some of the newer POAS still allow the rural officials *to invent new type of zoning, best suited to their particular context*²⁰. But overall the rural councils affected by the process after the Ross Bethio POAS do not show the same self-running empowerment dynamic.

- On the evolution of support services

Although the impacts observed on the support services development are notable (see above), it remains the main obstacle to the limits found on empowerment impact.

This primarily concerns the support to internal animation and transfer of skills to new generations of rural representatives (see above). Significant progress remains to be made in order to organize an institutional support which actually deals with the development of local communities' empowerment to manage space. The evolution of the technical support services position (SAED, Ard...) is far from being sufficient to carry this support.

¹⁹ General Census of Population and Housing

²⁰ See the example of the Ndiayene Pendao 2010 POAS

The POAS operation has allowed ensuring the recognition and acceptance of the technical and organizational rural communities' capacities. However, despite a relationship with local communities much more balanced than before the POAS Operation, the support services have maintained their commitment to lead development by keeping the upper hand in too many powers:

- *The managing of POAS methodology remain provided by support services*

This means that the services agents concerned (SAED in the valley, but others services or project teams elsewhere in Senegal) can make the methodology evolve towards different objectives, even in contradiction with empowerment (Papazian 2012b). This may even lead to the initial posture evolution: in 1999, the support team (ISRA, SAED, CIRAD, UGB) was in a position where she responded to a request (from the rural council), whereas today SAED positions itself as mandated by the State to establish POAS (Papazian 2012b).

This institutional footprint on the management of the approach also produces other brakes. Another tool is used in Senegal to develop local capacity for managing territorial development: the Local Development Plan (PLD). This tool is complementary to POAS. Indeed the POAS make an inventory of the space use rules needed for sustainable resource use, and the PLD identifier necessary investments for sustainable development (see above the case of POAS infrastructures in the Gnith and Djoudj birds National Park examples, the cooperation between the rural council and the Plan International NGO, etc..). In 2000, as an outcome of the partnership between the initial supervising team (ISRA, UGB, SAED) and the Ross Bethio Rural Council, a proposal was made for the local animators evolution into "local development animators ". This would have allowed to include their financing in a PLD.

In fact, the institutional implementation of POAS and PlD in the Senegal River valley is made by independently teams without coordination between them. Some of the latest carried out PLD (influenced by the PACR project) have corrected this absence of coordination by incorporating *the necessary investments for the POAS implementation* (cattle corridors improvement, ponds and sub-excavations preservation, vaccination park creation, etc.). However there is no generalization of these practices: the PLD are under the responsibility of the Regional Development Agency, which intends to clearly dissociate itself from the SAED and has no intension to "enhance a SAED product" ... this is unfortunately a reality.

And today the PLD implementation team (made up of local community representatives from different sectors (health, education, environment, etc.) under the Regional Development Agency supervision) is in fact not the same as the POAS implementation team (made up of technical SAED agents).

As we have seen, the insufficient development of support services is exacerbated by a less important mobilization of the new local officials' generations against these irregularities, because they are less well supported to acquire these capabilities, by the same technical services to which this task was entrusted. Thus in 2012, local officials oppose more or less successfully these methodologies regressions and it will gradually disappear without support to maintain motivation and diffuse it through the new elected representatives.

- *The facilitation of workshops is still provided by support services*

During the pilot operation, the workshops animation was provided by rural councilors and local animators. This responsibility, which is essential in the empowerment development, is easy to transfer to local actors if there is a real desire to do so. Empowerment and accountability forms of support in Senegal are controlled by multiple partners supporting participation. However, the POAS approach taken by SAED today is poorly taking into account selections of conflicting interests in the workshops (especially regarding the breeders' issues). POAS are implemented in an "industrial" way, with no time to worry if the workshop participants truly represent the various interests involved. Analysis of new POAS zoning in 2012 shows an extreme simplification through the attribution of all potentially irrigable lands to the agricultural sector, without consideration or dispute (see representation of the issues diversity in workshops) from the livestock sector.

- *the implementation funding is still controlled by the support services*

This is the key to the diffusion of sustainable empowerment capacities among rural councils. No progress can be sustainable until the necessary funding for the implementation of natural resources decentralized management are not managed directly by the primarily concerned. In a context where all partners except the communities themselves have an interest in undermining the empowerment capacities of communities, only direct management of funds may sustainably constrain support services to adapt themselves to communities' empowerment.

The POAS approach has not solved the issue of a financing of local communities that would be independent from support structures, whether for the implementation of the process or to support the daily management rules. The 1999-2000 pilot operation has not managed either to sufficiently improve the target groups' capacities so that they succeed into convincing donors and government to support this evolution, even if it takes ten years. And today all development projects related to POAS, especially in the Valley, are funded through a government structure²¹. Worse, after ten years of process diffusion, no sustainable fund line has yet been opened to support the internal animation of POAS by rural communities.

5 Conclusion

The 12 years after evaluation of the ComMod approach experimentation demonstrates the usefulness of this approach in obtaining sustainable impacts in terms of empowerment, whether at the local intervention scale or on the global context of the area. Its dual (methodological and strategic) specific focus pragmatically provides a sustainable impact. In strategic terms the impact is sustainable by ambitiously aiming a global context evolution while restricting to the first stage of this evolution, which can be reasonably feasible with the means and the lifetime of a limited intervention program. In terms of methodology, the impact is sustainable by allowing groups to autonomously develop the aimed capacities already from the first stage and then during all the duration of the limited intervention.

The approach integrates innovative tools specifically designed in order to implement this dual objective (participatory role-playing, participative simulations, co-constructed strategic framework...). This can lead to significant and sustainable changes in both **local** (*empowerment of the target groups in implementing a natural resources local management, still working ten years after the operation*) and **national** (*progressive integration of empowerment innovations that are locally produced, into national policies in an autonomous way after the end of the operation*) context.

The evaluation highlights that the strength of long-term impacts depends on the implementation (in addition to the approach) of *a direct target groups support that is independent of the powers that the approach wants to decrease* (for the case of POAS Operation: the State services). Indeed, the implementation of the empowerment caused by this type of operation is hampered by institutional reluctance carried out by the most powerful actors. However, empowerment support programs generally come from these same powerful actors (state services, technical support agencies...), besides the fact that the POAS positive results show that the best way to make these services evolve is to *independently give* to target groups the capabilities to **sustainably** constrain institutional actors into this evolution, and not just for a intervention time or a specific financial support.

After fifteen years of practice in different parts of the world on different issues and target groups (www.commod.org), the ComMod approach shows in this 12 years after evaluation that it is sufficiently effective and standardized for large scale diffusion. It benefits from an international community of practices, gathered in an exchange network which producing training and diffusion materials but also providing facilitators of the approach.

The next step is to produce training modules adapted to the format of IFAD projects, either to facilitate their implementation or to improve their design or monitoring.

²¹ Or closely related to it (see PACR).

Annex

Our method to evaluate empowerment impacts

Empowerment: from process evaluation to impact evaluation

Our methodology is focused on empowerment impacts. Well-founded and established methods exist in *ex-post* impact evaluations for measuring impacts such as poverty reduction, improvement of the beneficiaries' quality of life, or participation to a sustainable (economic, social, environmental and institutional) development²². However evaluation methods for assessing sustainable empowerment changes remain to improve. Although some indicators have already been developed, they are more often associated with an evaluation of the *quality of the participatory process*, but more rarely of the sustainable impacts of the process, that means for empowerment issue some long term changes about power relationships for instance. Indeed, indicators are more often relate to:

- The assessment of the process quality: e.g. number of conducted workshops; number and type of participants; representativeness, relevance, efficiency, and effectiveness of the chosen participatory approach (focus groups, workshops, round tables, participatory mapping, semi-structured individual interviews,...); account taken of aimed groups;
- The assessment of the process outputs: e.g. relevance, effectiveness, efficiency and (technical, financial, human) empowerment of the participatory structures put in place during the process (if any); evolution of the number of participatory approaches initiated after the process by the different aimed groups of the initial process; personal evolution of the perception, and the organizational and negotiating skills of each participant.

The few proposed indicators are in practice quite complex to measure: changes in social capital; level(s) of decision making and link(s) between these levels: relations between the local and the national level in terms of power distribution, main relationships between different categories of active local actors, ability to share information. Moreover, these indicators are rarely related to long-term impact assessment, despite being main issue of aim group empowerment. And long term impacts mean national changes: a sustainable improvement implies a tangible and sustainable impact not only locally but also at national level, as lasting local conditions of empowerment rest on parallel and complementary evolutions at the national level.

The team in charge of the POAS evaluation relied on its long experience in empowerment strategies, focused on long term impacts, to develop a method specifically dedicated to the assessment of empowerment impacts *after* an intervention, whether short, medium or long-term changes and at local and national levels. In order to obtain fine and reliable information on these social impacts, a specific methodology has been developed. Indeed, sustainable changes in power relationships in a given social and institutional context cannot be measured only by indicative indicators²³. Then qualitative evaluation is necessary but needs to be rigorously designed in order to avoid subjective assessments. The methodology set in thus based on local people's perceptions on empowerment evolutions brought by the intervention, but, because this data is very subjective, with a rigorous collection protocol to provide a comprehensive and reliable analysis of changes in the empowerment by the actors of the intervention context.

In order to achieve a rigorous analysis of the qualitative and subjective data, the methodology is based on **four methodological principles**:

- i. **a sampling social unit for the evaluation finer but reasonable ("n+1") as regards the target social scale ("aimed group) of the intervention**

Impact of an intervention on the aimed group empowerment is always relative: members of a target group who are directly affected by the intervention (e.g. through their involvement into participatory workshops) can use their new abilities to impose their views to other members of the aimed group. ***There is therefore a***

²² Process impact on economic growth and well-being, food security, conflict reduction, social equity, habitat, quality and sustainable management of the environment, climate change, good governance...

²³ For example. the number of people in the aimed group that have been invited to a participatory workshop is not sufficient to assess the sustainable impact of this aimed group on the decision process.

question of social scale in empowerment impacts. In order to pragmatically and operationally deal with this relativity of impact, a "n +1" is applied: the sampling unit of assessment is at the first social or geographic level *lower* (closer to the baseline population) than the one *directly reached* (e.g. in training courses, participatory workshops, focus groups...) by the assessed intervention: if intervention directly reached women leaders representing family mothers, the sample for the assessment will be the family mothers and not only the women leaders directed reached by intervention activities, whereas if the intervention has directly targeted all the family mothers of a site, the sampling unit for the assessment will be the young women, members of families and under the authority of a mother²⁴. The procedure also includes in the "n+1" evaluation sample some key local people of the given social level, who were not aimed by the intervention but can provide information about impacts.

This "n +1" procedure reduces bias of under-representing weaker individuals into a group and multiplies the probabilities to point out the impact diversity among the aimed group.

ii. A specific analysis technique of interviews, in order to deduct impacts from their subjective positions

Indeed, the evolution of power relationships is an issue that may exacerbate people's subjectivity. A "disguised questioning" is used, based on asking not only directly on the impacts formulation, but mainly on the improvement proposals that respondents may suggest in response to their subjective impacts statement. Actual impacts are then deduced from an analysis of these respondents' suggestions of intervention improvements.

iii. Using an additional specific inquiry: the " duo debating"

Two main forms of inquiry exist to assess people's perception:

- Personal interview. It minimizes the bias due to social hierarchies which would express within collective discussions, but the evaluator loses the information, and validation, gained from a debate of conflicting views and interests.
- Focus group participatory workshop. This type of workshop allows gathering collective views of an aimed group (especially a disadvantaged group). However, the prevailing opinion that generally emerges from the focus group is more a reflection of the views of the group most influential individuals. It is even more a breach that it is important to assess the empowerment of individuals who can less express themselves, including within a disadvantaged group (eg women).

To complete these two types of survey, a specific inquiry is added, combining the value of the personal interview with the value of a collective contradictory debate. The « duo debating » survey is set to get into debate two selected persons with conflicting interests, identified out of individual interviews or focus groups (see below).

In summary, our "n +1" inquiry process to evaluate empowerment impacts is generally composed of:

- Firstly some focus groups in order to highlight the different prevailing opinions and the leaders of each of these opinions;
- Then a series of personal interviews from a representative sample of the diversity of the aimed group and other key persons at the "n+1" level. These interviews revealed new opinions which had not necessarily emerged during focus groups. It also allows to select among respondents (based on the quality of their argumentation) as many interesting profiles as there are different held opinions for the future debates;
- Finally, some contradictory duo debates, carried out in parallel between:
 - o Leaders of the aimed group who have conflicting prevailing opinions (selected through focus group)
 - o Opposed members of the aimed group who have also (others) conflicting opinions (selected

²⁴ For example in the case of POAS Operation for example, the finest level of population direct involvement was the participatory workshops at the level of zone commissions (Division of the Ross Bethio rural community territory). A zone commission gathering a dozens of villages, the unit of observation for the impact assessment is therefore the village level.

through personal interviews).

iv. Optional: insert a participative modeling

A participative modeling phase improves the results of the analysis. A design of an *ex post* model of the thought empowerment process impact onto the local context allows comparing the impacts that should have occurred as regards the originally planned intervention with the impacts that have actually been identified during the assessment. Participatory analyses from this model allow in one hand to analyze and validate more precisely the identified impacts and in the other hand to identify ways of improvement for a future intervention.

The participatory settings for this modeling can be adapted to the context, as it able to involve aimed groups at various stages of the evaluation modeling exercise (see chart below). This means the addition of a participatory modeling improves the expert methodology assessment, as well as expert evaluation strengthens the participative evaluation one.

	Expert evaluation	Participatory evaluation
Identification of indicators	Identification and selection of indicators by experts in charge of the evaluation	Identification and selection of indicators by aimed groups through participative workshops ²⁵
Model development	Expert conceptual modeling	Participatory construction of a model by actors, which represent their vision of impact processes
Simulation	Computer simulation	Actors playing role games to simulate a conceptual model (see www.commod.org)

²⁵ d'Aquino et al., 2012a and b.

Illustrations

Figure 1: The Ross Bethio rural community in 1996 (Source: SAED)

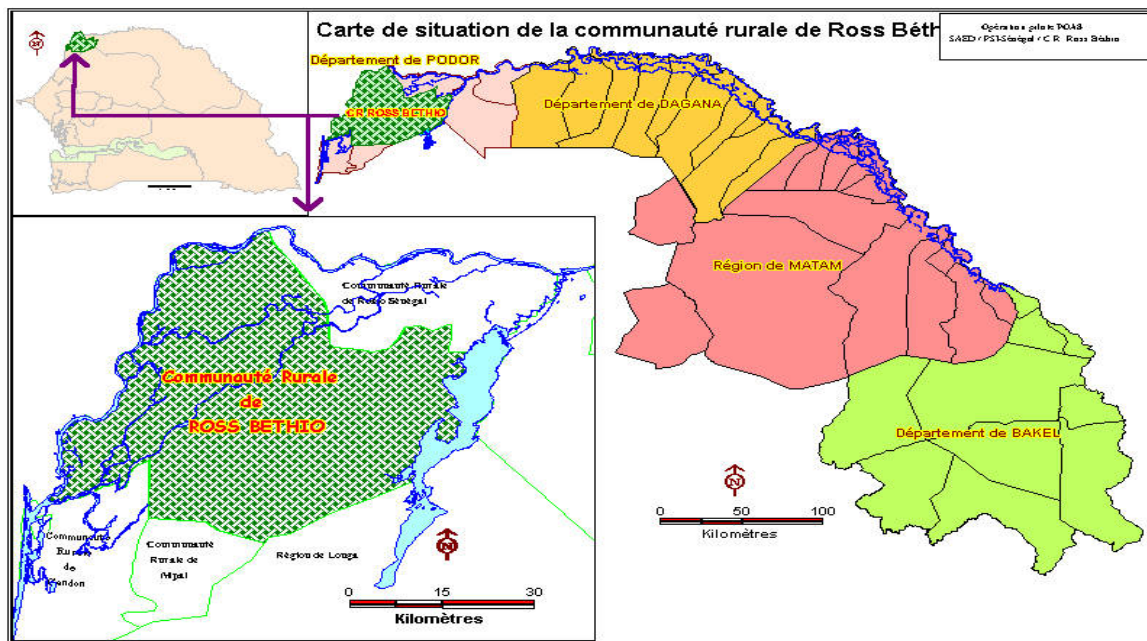


Figure 2: Cartographic Inventory, participative simulation of management options, regulatory zoning: the cartographic products of the POAS pilot operation

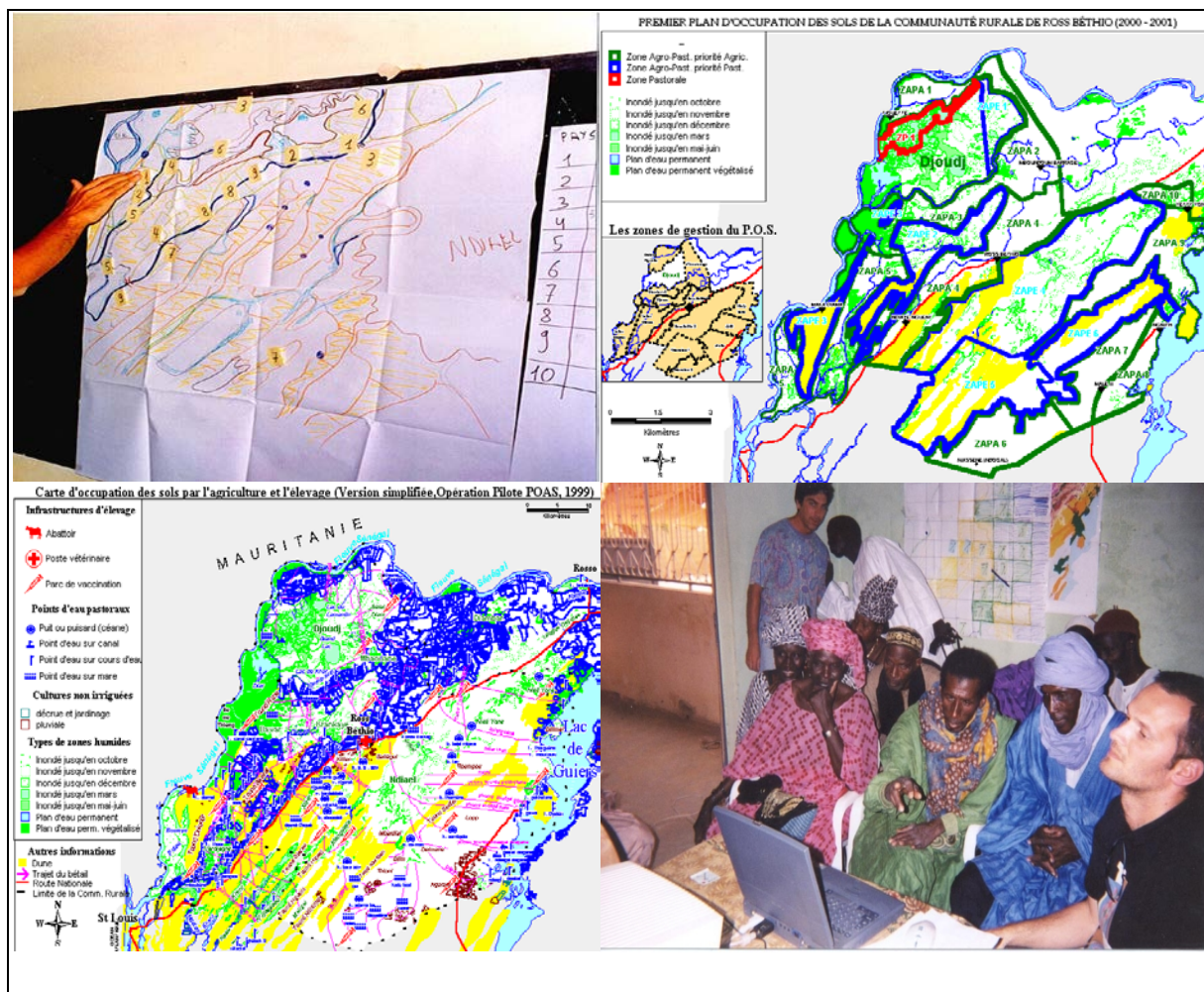


Figure 3 : Regulatory charter formalizing participative decisions produced during the POAS Operation

1. Les règles
<p>Article 1 : points d'eau pastoraux</p> <p>Une liste officielle des points d'abreuvement pour le bétail est consignée dans une délibération du Conseil Rural et sur la carte du Plan d'Occupation des Sols. Aucun empiètement ne sera toléré. [ces propositions sont conformes aux <i>articles 3 et 4 du décret n°80-268 du 10 mars 1980</i> portant sur l'organisation des parcours du bétail et fixant les conditions d'utilisation des pâturages] Aucune amende de dégâts aux champs n'est infligeable aux troupeaux pour les parcelles cultivées situées sur les pistes d'accès à ces points d'eau. [cette proposition est conforme aux <i>articles 2 et 3 du Code des Contraventions</i> et à l'<i>article 37 du décret 80-268</i>] La protection des parcelles limitrophes des pistes d'accès aux points d'eau est sous l'entière responsabilité des personnes cultivant ces champs, qui devront prendre les mesures adéquates (surveillance, clôture,...). [cette proposition est conforme aux <i>articles 2 et 3 du Code des Contraventions</i> et reprend les dispositions l'<i>article 7 du décret 80-268</i> instituant une zone de sécurité]. Seul le Conseil Rural pourra supprimer un point d'abreuvement pour le bétail inscrit dans la liste officielle. Il devra dans ce cas-là respecter la procédure de révision du POS décrite à l'article 7. [cette proposition reprend le parallélisme des formes en matière de délibération du Conseil Rural, prévu par la <i>loi 96-06</i>] En cas de réalisation d'un grand aménagement par l'Etat ou par un privé dans une zone comprenant un point d'eau pastoral, l'autorité responsable de ce nouvel aménagement devra prévoir à sa charge un aménagement particulier (couloir clôturé, point d'eau artificiel) permettant de conserver l'accès à l'eau pour le bétail dans cette zone. Le Conseil Rural a la responsabilité de contraindre à cet aménagement. [cette proposition développe et enrichit les dispositions de l'<i>article 195 CCL-15^{ème}</i>]</p>
<p>Article 2 : utilisation des résidus de récolte par le bétail</p> <p>Le brûlis est réglementé annuellement par une délibération du Conseil Rural, en fonction des "sous-zones" établies par la Communauté Rurale (cf. Art. 8). [cette proposition reprend les dispositions de l'<i>article 195 CCL-13^{ème}</i>] Le contrevenant aux règles établies annuellement par le Conseil Rural pour chaque sous-zone est passible d'une amende. [cette proposition développe et enrichit les dispositions de l'<i>article 251 CCL-5^{ème}</i>] Après la date dite "de fin de récoltes" (cf. Art. 4), tout agriculteur doit laisser au bétail l'accès aux résidus de récolte, que son champ soit clôturé ou non. [cette proposition reprend l'<i>article 15 du décret de 1980</i> et l'<i>article 195 CCL-15^{ème}</i>]</p>
<p>Article 3 : les différents types de zones d'occupation du sol</p> <p>Le territoire rural de la Communauté Rurale de Ross Béthio est divisé en trois types de zones d'occupation des sols, délimitées sur le Plan officiel d'Occupation des Sols de la Communauté Rurale : les Zones Agro-pastorales à Priorité Agricole (Z.A.P.A.), les Zones Agro-pastorales à Priorité Elevage (Z.A.P.A.R.E.), les Zones Pastorales (Z.P.). Dans ces différentes zones, en sus des règles appliquées sur tout le territoire de la Communauté Rurale (cf. Art. 1), les règles suivantes sont appliquées.</p>
<p>Article 4 : la Zone Agro-pastorale à Priorité Agricole (Z.A.P.A.)</p> <p>Le parcours du bétail est autorisé toute l'année dans l'espace non cultivé d'une zone ZAPA, mais l'éleveur est entièrement responsable des dégâts qui pourraient être infligés à un champ. Le parcours du bétail est interdit sur l'espace cultivé d'une ZAPA jusqu'à une date, dite "date de fin de récoltes", fixée annuellement pour chaque sous-zone par la Commission de sous-zone (cf. Art.8). En cas d'intrusion d'un troupeau dans un espace cultivé avant la date fixée annuellement par la Commission de sous-zone, une amende sera infligée. Le contrevenant devra en plus dédommager l'agriculteur pour les dégâts infligés au champ.</p>
<p>Article 5 : La Zone Agro-pastorale à Priorité Elevage (Z.A.P.E.)</p> <p>Le parcours du bétail est autorisé toute l'année dans toute zone ZAPE. Aucune amende aux éleveurs pour des dégâts aux champs n'est possible dans une zone ZAPE. La protection des parcelles cultivées contre le bétail est sous l'entière responsabilité des personnes cultivant ces champs, qui devront prendre les mesures adéquates (surveillance, clôture,...) Pour éviter les dégâts du bétail sur leurs champs.</p>
<p>Article 6 : La Zone Pastorale (Z.P.)</p> <p>L'agriculture est interdite dans toute zone Z.P. Le parcours du bétail est autorisé toute l'année dans toute zone Z.P. Aucune amende pour dégâts aux champs n'est infligeable à un éleveur dans une zone Z.P.</p>
2. Les procédures d'adoption, de diffusion et de révision du POS
<p>Article 7 : publication et révision du Plan d'Occupation des Sols</p> <p>Un séminaire interne du Conseil Rural diffusera toute l'information détaillée sur le nouveau POS. Ce séminaire s'achèvera par une séance extraordinaire du Conseil Rural qui inscrira dans sa délibération les règles et les procédures du POS, en vue de leur adoption. Les règles et les procédures du POS seront traduites en langues nationales à la fin du séminaire interne. Elles seront de même diffusées par voie de presse (écrite et parlée) à la fin du séminaire interne. Le Conseil Rural organisera une réunion de restitution dans chaque sous-zone (cf. Art.8) où seront conviés tous les chefs de village, les représentants des organisations de base et des groupes d'usagers informels, les amodiataires et les ONG intervenant dans la sous-zone. Pour chaque révision du POS, le Conseil Rural devra procéder à ces quatre actes ci-dessus. La révision est donc soumise aux mêmes étapes d'adoption et de diffusion par le Conseil Rural.</p>
<p>Article 8 : les Commissions de sous-zone</p> <p>Le Conseil Rural de Ross Béthio a divisé le territoire sous sa responsabilité en 13 sous-zones (cf. Art. 8). Chaque sous-zone correspond à une communauté cohérente de villages. Une Commission de sous-zone est créée pour chaque sous-zone. Tous les chefs de village sont membres de droit de cette Commission. La Commission de sous-zone est chargée de l'information et de la sensibilisation des populations sur les règles et procédures du POS. La Commission de sous-zone est aussi chargée d'établir annuellement la date dite "date de fin de récoltes", à partir de laquelle les troupeaux sont autorisés à pâturer sur les champs mis en culture. Un Comité de surveillance du POS est créé dans chaque Commission de sous-zone. Ce Comité est composé de 2 représentants de chefs de village, de 2 représentants des agriculteurs, de 2 représentants des éleveurs, de tous les Conseillers Ruraux de la sous-zone et d'un représentant du Centre d'Expansion Rurale Polyvalente. Le Comité est obligatoirement présidé par un Conseiller Rural. Le Comité de surveillance du POS est chargé de veiller à l'application des règles et procédures du POS pour la sous-zone considérée. Il est chargé d'identifier les contrevenants et d'en informer le Conseil Rural.</p>
<p>Article 9 : recours</p> <p>Tout résident de la Communauté Rurale de Ross Béthio est habilité à signaler à la Commission de sous-zone un acte non conforme au POS. Si ensuite la Commission de sous-zone (qui joue alors le rôle de commission de conciliation) ne réagit pas à temps et conformément aux dispositions du POS, tout résident de la Communauté Rurale est habilité à signaler directement cette non-conformité au Conseil Rural. En cas de silence du Conseil Rural et conformément aux délais de recours, tout citoyen lésé est habilité à introduire une action contre le Conseil Rural devant le tribunal régional de St Louis statuant en matière administrative.</p>

Figure 4: Self-running implementation of infrastructures few years after the end of the POAS Operation

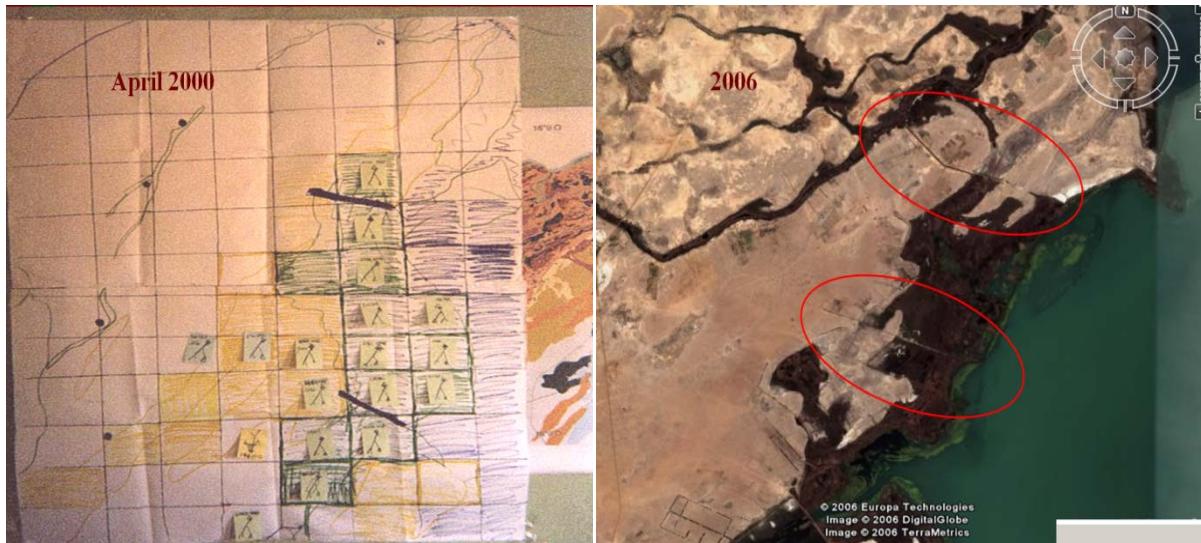


Figure 5: Proposals for the management of the Djoudj birds National Park peripheral zone from a single two-day workshop (May 1999)

1. Mise en place d'aménagements pastoraux dans la zone périphérique Nord.

Le diagnostic collectif effectué lors de cet atelier a dégagé les faits suivants : (i) les meilleurs parcours pastoraux sont les espaces inondés pendant deux mois maximum, et à l'optimum pendant 20 jours maximum; (ii) ce type de parcours est insuffisant en zone périphérique du Parc à partir du mois d'avril; (iii) des inondations contrôlées pourraient créer ce type d'espace dans la zone périphérique du parc ; (iv) grâce aux ouvrages hydrauliques du Parc et des chasseurs, la plupart des infrastructures nécessaires à la régulation de ces périodes d'inondation sont présentes. De là, les participants ont précisé l'objectif de leurs propositions : provoquer une crue artificielle d'une dizaine de centimètres de profondeur en avril, pendant une vingtaine de jours, afin de favoriser le regain d'un pâturage de qualité hors du Parc à une époque où il fait défaut. L'espace concerné par cet aménagement serait constitué par la zone inondée se découvrant actuellement entre octobre et décembre. Cette zone constitue en effet déjà le meilleur pâturage et contient les espèces herbacées recherchées que l'on voudrait voir ressurgir en avril. Ces aménagements pastoraux, en provoquant la mise en place d'une prairie humide quasi permanente en zone périphérique, constitueraient une zone écologique tampon efficace, autant pour préserver le Parc d'activités perturbatrices que pour accroître les ressources alimentaires et l'habitat de la faune sauvage. Pour cela, le groupe a dégagé des recommandations techniques, organisationnelles et politiques.

Au niveau technique, quatre options possibles pour la réalisation des aménagements : (i) utiliser le canal du Caïman pour inonder la portion nord-est se découvrant actuellement entre octobre et décembre ; nécessiterait la construction d'une diguette entre le Parc et la zone inondée (ii) utiliser le canal de Diadram ; nécessiterait la construction d'un canal pour amener l'eau jusqu'à la zone et de diguettes pour contenir l'eau sur cette zone ; (iii). Utiliser les canaux des chasseurs en bordure du *Dieupeulou* : ne nécessiterait a priori pas d'aménagements mais une concertation avec les chasseurs et autres utilisateurs du *Dieupeulou* ; (iv) utiliser le *Djoudj* et *Khoyoye* pour inonder la portion ouest ; nécessiterait l'aménagement des nichoirs (prévu dans le Plan Quinquennal), puis la réalisation d'un ouvrage de régulation à la confluence *Djoudj-Khoyoye*. Cette option nécessiterait aussi un accord du Parc pour ouvrir l'ouvrage quelques temps en Avril. Chacune des options n'est pas antagoniste des autres, puisque chacune permettrait d'inonder une portion différente.

Des mesures d'accompagnement doivent compléter ces aménagements. Il est fortement recommandé au Conseil Rural de constituer d'autres espaces pastoraux productifs ailleurs dans la Communauté Rurale, afin d'éviter la venue des autres troupeaux du Delta. Le représentant du Conseil Rural présent à l'atelier a assuré que cette politique était déjà en cours, dans le cadre du Plan d'Occupation des Sols actuellement mis en place.

2. Organisation de l'accès aux ressources sur la zone périphérique Nord.

Les participants proposent au Conseil Rural de retenir dans son POAS la règle suivante : l'accès des parcelles aux troupeaux est interdit. Les éleveurs sont par contre autorisés à venir récolter les résidus de récolte pour alimenter leurs animaux. Les participants proposent aussi au Conseil Rural que les amendes recueillies dans le cadre de la lutte contre la divagation du bétail soient ré-investies sur les aménagements hydro-pastoraux proposés. Les participants demandent aussi au Conseil Rural de réfléchir à des mesures incitatives pour l'affectation de parcelles à la production fourragère. Ils suggèrent enfin au Conseil Rural de charger les éco-gardes de la surveillance des règles du POS sur leur zone. Les participants demandent au Conseil Rural de mettre rapidement en place la Commission POAS de leur zone. Les participants ont achevé cette conception de propositions en identifiant les différents partenaires qu'il fallait associer, afin d'assurer la continuation et réussite de leur entreprise.

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